



## Selective distribution of enzymes in a microfluidic reactor

Daugaard, Anders Egede; Pereira Rosinha Grundtvig, Ines; Krühne, Ulrich; Hoffmann, Christian

*Publication date:*  
2016

*Document Version*  
Peer reviewed version

[Link back to DTU Orbit](#)

*Citation (APA):*

Daugaard, A. E., Pereira Rosinha Grundtvig, I., Krühne, U., & Hoffmann, C. (2016). *Selective distribution of enzymes in a microfluidic reactor*. Abstract from Warwick Polymer Conference 2016, Warwick, United Kingdom.

---

### General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

## Selective distribution of enzymes in a microfluidic reactor

A.E. Daugaard, Ines P. Rosinha, Ulrich Krühne and Christian Hoffmann

*Off stoichiometric thiol-ene mixtures are well suited for preparation of microfluidic devices with highly functional surfaces. Here a two stage process employing first thiol-ene chemistry (TEC) to prepare two opposite parts of a microfluidic system with a 30x30 mm reactor and subsequently a thiol-epoxy bonding was used to prepare a fully sealed microfluidic system. The reactor was surface functionalized in-situ with allyl glycidyl ether in different patterns (half-reactor, full-reactor, checkerboard structures) on the surface to provide a controlled distribution of epoxides. The method additionally enables the selective immobilization on either top-side or bottom-side or both sides of the reactor. Thereafter horseradish peroxidase was immobilized on the surface and activity tests illustrated how this distribution of the enzyme on the surface could be used to optimize the activity of the enzyme. The results were corroborated by CFD simulations.*